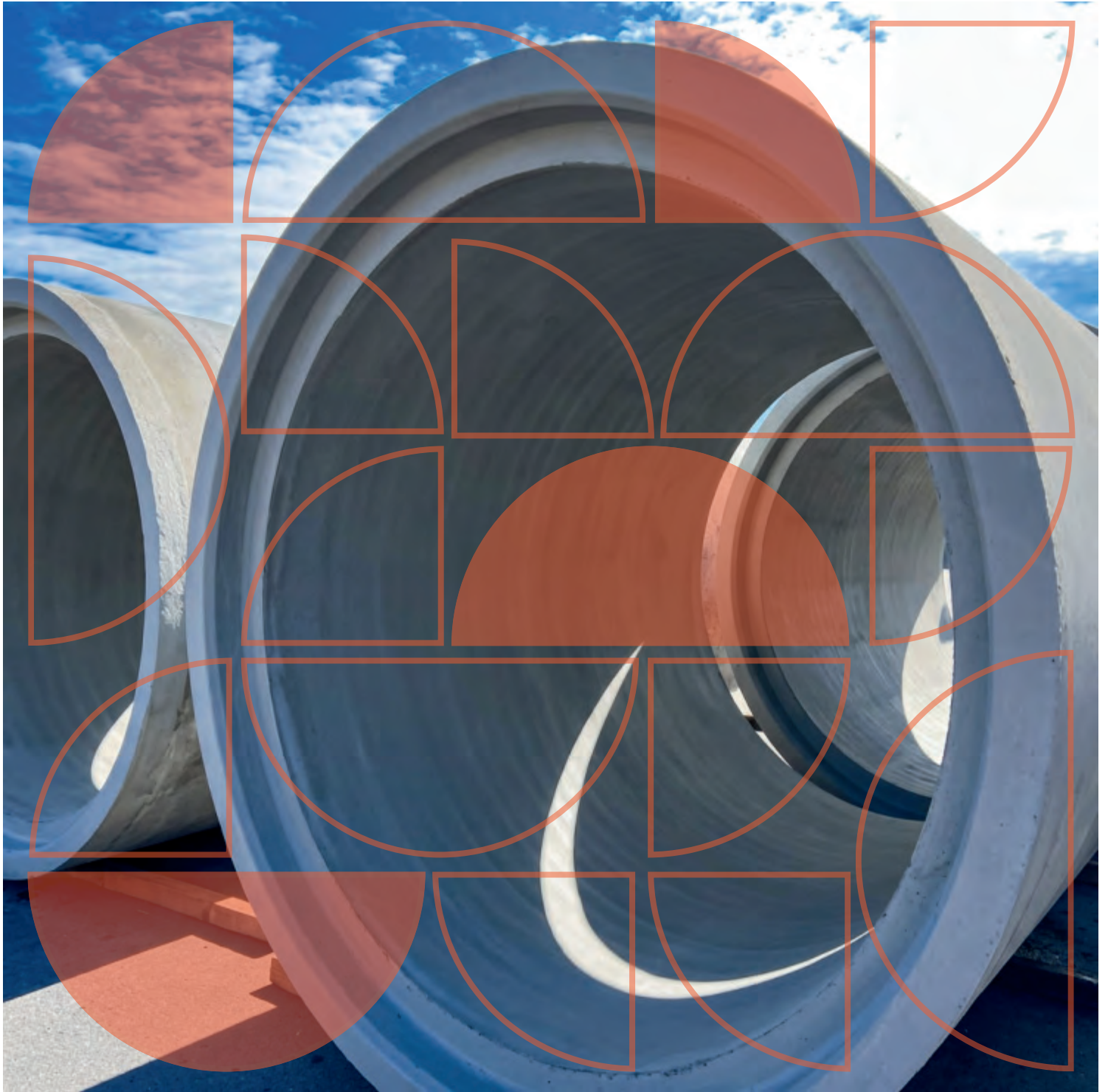


TDR BRAVO®

REINFORCED CONCRETE PIPE



TDR BRAVO® is a reinforced concrete pipe product line designed for culvert and storm drain applications. It utilizes high-quality materials to deliver exceptional structural strength and superior watertight performance through its integral joint design.



SCOPE

This specification establishes the requirements for 18 inches through 84 inches TDR BRAVO® reinforced concrete pipe for use in culvert and storm drain applications.

PIPE

TDR BRAVO® pipe delivers exceptional structural strength, superior watertight performance, and advanced design technology. Key benefits include:

- Non-flammable construction material
- Reduced embedment material costs
- Minimal deflection with proper installation
- High resistance to flotation forces
- Type-B wall configuration available in Classes III, IV, and V
- Proven durability in highway drainage and storm drain applications

APPLICATIONS

TDR BRAVO® reinforced concrete pipe is suitable for the following applications:

- Culvert drainage
- Highway drainage systems
- Storm drain infrastructure
- Stream and channel crossings

STANDARDS

TDR BRAVO® pipe and fittings shall comply with the following standards:

- ASTM C76 – Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
- ASTM C443 – Standard Specification for Joints for Concrete Pipe and Precast Concrete Manholes

ID	Wall Thickness	Weight*	Confined Joint
in	in	lb/ft	Type
18"	2.4"	190	Single Offset
24"	3.0"	288	
30"	3.5"	402	
36"	4.0"	547	
42"	4.5"	718	Confined
48"	5.0"	905	
60"	6.0"	1355	
72"	7.0"	1894	Straight Wall
84"	8.0"	2548	

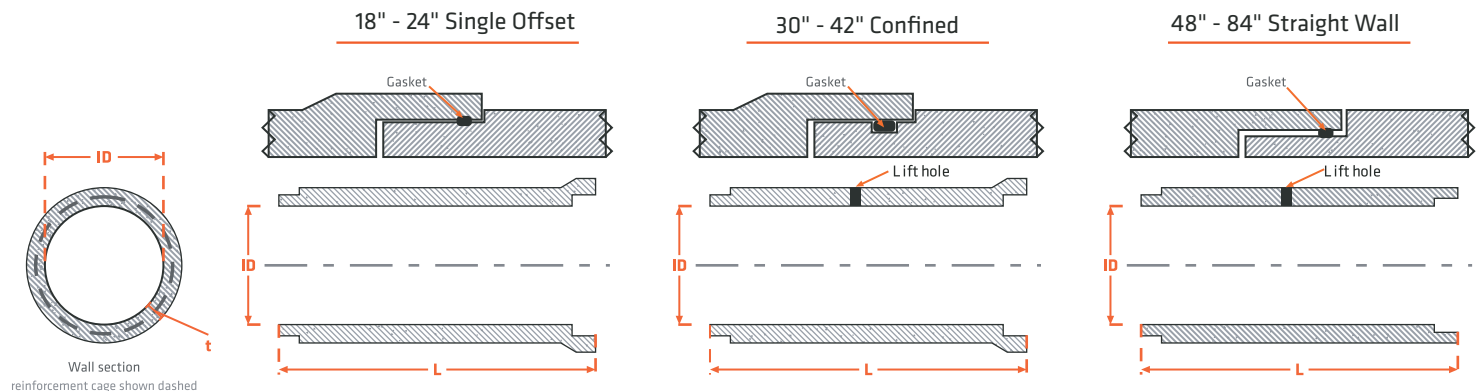
* Weight per linear foot of pipe. Actual weight may vary based on wall configuration and joint type.

JOINT TYPE

All pipe joints shall comply with ASTM C1619. The following joint configurations are available based on pipe diameter:

- 18" - 24" (Single Offset Joint)
- 30" - 42" (Confined Joint)
- 48" - 84" (Straight Wall Joint)

Joint types are selected based on structural requirements, installation conditions, and project specifications. Consult TDR technical representatives for joint selection guidance.



August 2026